REMARKS

On August 10, 2005, Applicants filed a Request for Continued Examination and an Amendment including changes to the specification. Applicant further amends the specification in this Supplemental Amendment to maintain consistency with the drawings and to correct informalities. Accordingly, the amendments to the specification submitted herewith do not constitute new matter and do not raise new issues requiring further consideration and/or search. Entry is of this Supplemental Amendment is respectfully requested pursuant to 37 C.F.R. § 1.111 (a)(2)(i)(E).

As noted above, Applicant has amended the specification to add the terms $\Delta s1$ and $\Delta s2$ to equation (2) and subtract them in equation (3). In order to assist the Examiner's understanding that these changes are supported by Figs. 9-11, Applicant has attached hereto a copy of Fig. 9, as well as marked-up versions of Figs. 10 and 11. Marked-up Fig. 10 further illustrates shift width Xa due to misalignment, and marked-up Fig. 11 further illustrates second shift width $\Delta s2$.

As discussed in the specification, the "first and second monitor latent images 36 and 37 ... [are] reduced by a first shift width $\Delta s1$ in response to the first exposure dose D1 and is thereby defined as a first monitor width L1." Page 18, lines 14-18. The first and second monitor latent images are shown as elements 36a and 37a, respectively, in Fig. 10. The specification also discloses that the first (36a) and second (37a) monitor latent images are further narrowed by a displacement Xe resulting from fogging during the second exposure dose D2:

> Each of the first and second monitor latent images 36a and 37a, obtained after the double exposure, *is made narrower by a displacement Xe than the pattern width obtained by a single exposure in the first exposure dose D1,* and a first

reduced width La1 is thereby defined. This is a result of overexposure caused by a fogging affect under the second opaque portion 18.

Emphasis added. Page 19, lines 7-13.

Accordingly, the difference in length between latent image 36a (length La1, see marked-up Fig. 10) and first exposure monitor portion 6 shown in Fig. 9 is equal to the sum of Xe and shift width Δs1. Similarly, the difference in length between latent image 37a (length La1, see marked-up Fig. 10) and second exposure monitor pattern 7 shown in Fig. 9 is equal to the sum of Xe and first shift width Δs1. Since, as further shown in marked-up Fig. 10, the right side of latent image 36a and the left side of monitor latent image 37a are exposed during doses D1 and D2, the amount of narrowing associated with monitor latent image 36a (and resulting resist pattern 26 shown in marked-up Fig. 11) is assigned a positive value, while that of monitor latent image 37a (and resulting resist pattern 27 shown in marked-up Fig. 11) is assigned a negative value. See page 19, lines 9-13, and 17-20.

During the second dose, "[a] pattern width of each of the third and fourth monitor latent images 38[a] and 39[a] is reduced by a second shift width Δs2." See specification at page 19, lines 1-4, and Fig. 10. In addition, as further shown in attached marked-up Fig. 10, the third and fourth monitor latent images 38a and 39a are shifted in the same direction by the shift width Xa due to misalignment of the third and fourth exposure monitor patterns 8 and 9, which are exposed in the second exposure step. See specification at page 20, lines 13-15. Accordingly, "the third and fourth monitor resist patterns 28 and 29 are shifted in the same direction by the shift width Xa," as shown in attached marked-up Fig. 11. See specification at page 20, lines 16-17.

Thus, the total narrowing associated with each of the resist patterns 28 and 29 relative to the exposure monitor patterns 8 and 9 is $\Delta s2$, and the pattern shift of each of these resist patterns 28 and 29 is Xa. Accordingly, the displacement of resist pattern 26 is ($\Delta s1$ + Xe) due to pattern narrowing, while displacement of resist pattern 28 is ($\Delta s2$ + Xa) due to pattern narrowing and shifting.

First pattern displacement, S1, therefore, is expressed as:

S1= Xe + Xa + $\Delta s1$ + $\Delta s2$

On the other hand, displacement of resist pattern 27 is ($-\Delta s1$ − Xe) due to narrowing of the pattern, while displacement of resist pattern 29 is ($-\Delta s2$ + Xa) due to pattern narrowing and shifting. Accordingly, second pattern displacement, S2, is expressed as:

S2 = -Xe + Xa -$\Delta s1$ -$\Delta s2$

Applicants note that the expression for S1 in the originally filed specification (equation (2)), lacks the additional terms $\Delta s1$ and $\Delta s2$, and the expression for S2 (equation (3)) does not include the terms -$\Delta s1$ and -$\Delta s2$. As discussed above, however, amended equations (2) and (3) are consistent with and supported by Figs. 9-11. These changes, therefore, do not introduce new matter.

As further noted above, equation (4) has been amended to express the quantity (S1-S2)/2 as being equal to the sum of Xe + $\Delta s1$ + $\Delta s2$. The term (S1 − S2)/2 is disclosed in the originally filed specification (see page 21, line 10). Since amended equations (2) and (3) do not introduce new matter, modified equation (4), which follows from amended equations (2) and (3), also does not introduce new matter.
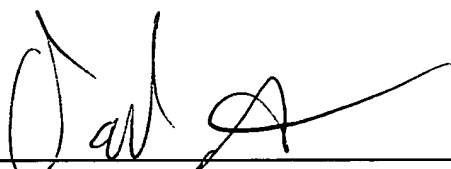
Applicants respectfully request entry of this Supplemental Amendment. Since this application is otherwise in condition for allowance, a timely issuance of a Notice of Allowance is earnestly requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: September 29, 2005   By:_____
                                        David L. Soltz
                                        Reg. No. 34,731

Attachments: Fig. 9 and a marked-up versions Figs. 10 and 11